activities which bespoke for it a considerable intensity. At 6 p. m. of the 6th the storm was reported in latitude 30° N., longitude 144° E., with an observed pressure of 28.74 inches. At noon of the 7th its position was placed in 35° N., 147° E., while the *Adna* was in 36° 44′ N., 142° 58′ E., lowest pressure 29.42 inches. In the rough seas and in the dense fog which prevailed for a portion of the 7th and 8th, with her head to the storm, the *Adna* slowed engines for several hours. On the 8th the typhoon was reported central near 39° N., 150° E., moving northeastward.

On the 7th the British S. S. *Shabonee*, San Francisco toward Nagasaki, encountered fierce winds in this storm in 32° 48′ N., 144° 40′ E., highest force 11, from east by south, lowest pressure 29.04 inches. No information is at hand concerning the whereabouts of the typhoon on the 9th, but on the 10th it seems quite certain that it passed into the Aleutian region. The British S. S. *Empress of Canada*, bound toward Yokohama, at an early hour observed a southeast gale near 49° N., 168° E., with falling pressure. At 2 p. m. of the 10th, in 48° 50′ N., 165° 56′ E., the vessel experienced a west-northwest gale, force 8, and the lowest pressure reading for the month, 28.57 inches. To quote:

4 p. m., wind NW. x W., 8. Barometer 28.65. High, confused sea; overcast, squally. 8 p. m., wind NNW., 9. Barometer 29.02. Midnight, wind NNW., 8. Barometer 29.39. High NNW. sea. 10th, storm rapidly diminishing.

Early in May, in connection with the cyclonic conditions prevailing midway along the United States-Hawaiian routes, the Japanese S. S. *Azumasan Maru* on the 5th encountered an east gale of force 9, accompanied by a pressure lowest at 29.17 inches, in 45° 17′ N., 138° 50′ W. This storm, which merged with a disturbance of the Aleutian LOW type than prevailing south of Alaska, seems not to have been violent at any point. The LOW which engulfed it exhibited scarcely more energy, except that its minimum pressure was lower. On the 9th to 11th moderate gales were reported by several vessels within the area bounded by the 40th and 50th parallels, 142d and 152d meridians of west longitude. The Japanese S. S. *Arizona Maru* observed the lowest pressure, 28.80 inches, late on the 10th in latitude 50° 10′ N., longitude 147° 40′ W. On the morning of the 11th, slightly to the eastward, the same vessel noted the highest wind force, 9, from the southwest by south, observed in connection with this phase of the storm.

On the 23d the Aleutian LOW intensified somewhat to the southwestward of Alaska, and gales of force 8 were reported near 50° N., 175° W., by the British S. S. *Empress of Russia*, lowest pressure 29.58 inches.

On the 28th a storm developed off the Vancouver and northwestern Washington coasts, and caused gales to the southward and eastward. The highest wind velocity noted was observed by the North Head Weather Bureau station—56 miles an hour from the south. This was one of the few ocean storms to enter the North American mainland during May.

Pressure averaged normal or below over the eastern part of the ocean, as shown by observations at the island stations. This was the third month with an absence of pressure above normal but was distinguished from the preceding two by reason of the fact that the principal deficiency in May occurred at Midway Island, whereas in April it was at Honolulu and in March at Dutch Harbor. At the last-named station the average pressure, based on p. m. observations, was 29.83 inches, or practically normal. The highest pressure, 30.50 inches, occurred on the 2d; the lowest, 28.86, on the 13th. Absolute range, 1.64 inches. At Honolulu the mean p. m. pressure was 30.04, as compared with the normal of 30.05 inches. The highest pressure, 30.18, occurred on the 19th; the lowest, 29.94, on the 14th. At Midway Island the mean p. m. pressure (29 days) was 29.96 inches, or 0.13 inch below normal. The highest pressure, 30.16 inches, occurred on the 30th; the lowest, 29.74, on the 11th.

Fog was of widespread occurrence along the northern steamer routes, and was observed over some portion of the area on nearly every day of the month. It was observed along the American coast from Sitka to Cape San Lucas, and with especial frequency off San Francisco and Lower California.

NOTES.

Mr. A. W. Roebuck, third officer of the American oil tanker *E. L. Doheny III*, reported the following:

May 28.—10:30 a. m. Saw two exceptionally large waterspouts about a mile apart and moving from east toward west. Latitude 11° 42′ N., longitude 89° 10′ W.

Observer John H. Aspinwall, of the British S. S. *Canadian Transport*, Adelaide toward Vancouver, made the following comment:

May 12.—Picked up northeast trades about latitude 2° S., longitude 172° 24′ W. May 26. Lost them in latitude 34° N., longitude 146° W.

STORMY WEATHER OFF THE LOWER SOUTH AMERICAN COASTS.

By WILLIS E. HURD.

The British tanker *San Patricio*, Capt. A. Hulbert, Observer H. C. Archer, Buenos Aires toward San Francisco via Magellan Strait, encountered five days of stormy weather during May, 1923. The storm began at noon of the 6th with a moderate west-northwest gale near latitude 53° 50′ S., longitude 71° 30′ W. During the afternoon the wind increased to a strong gale, and by the 7th had become a whole gale, which continued with frequent violent rain squalls, accompanied by high, dangerous seas, until the 11th. The winds were from some westerly direction throughout. The pressure on the 8th dropped as low as 28.73 inches, in latitude 52° 55′ S., longitude 74° W. At 7 a. m. of the 11th in 47° 04′ S., 79° 40′ W., pressure had risen to 29.74 inches.

In connection with the foregoing, a report of a South Atlantic storm encountered by the British S. S. *Vestris*, Capt. Oscar Penrice, Observer A. G. T. Brown, Buenos Aires toward New York, is interesting. At 8 a. m. of May 12 the *Vestris* was in latitude 34° 53′ S., longitude 54° 28′ W. From 4 p. m. of that day until 8 a. m. of the 13th, when in 30° 44′ S., 49° 13′ W., the wind increased until it became a whole gale from the west-southwest, which continued until 4 p. m. of the 13th, after which wind and sea abated. The lowest observed pressure was 29.50 inches, in latitude 33° 42′ S., longitude 52° 52′ W., on the 12th.